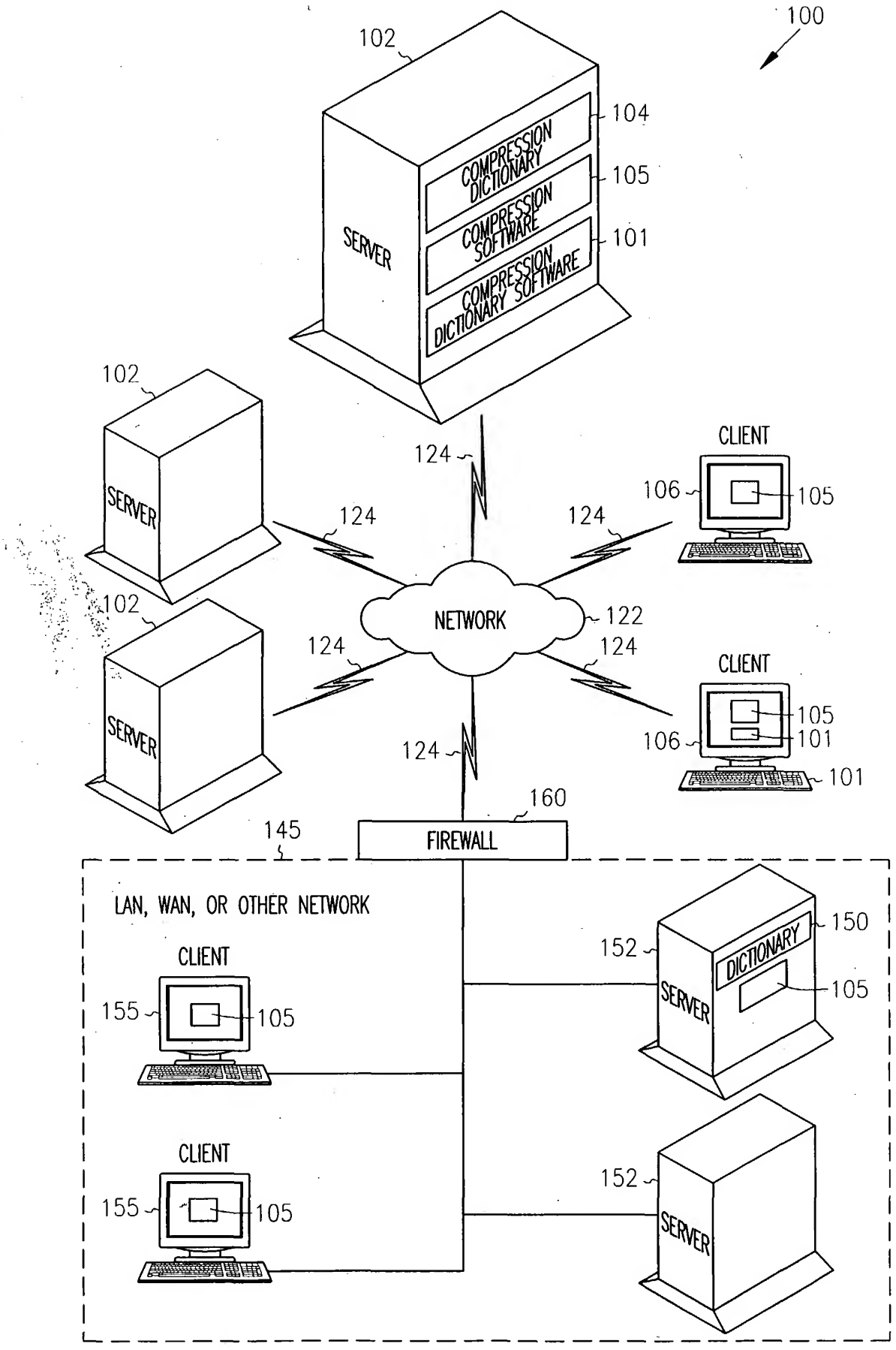
100
102
104
105
101
SERVER
COMPRESSION DICTIONARY
COMPRESSION SOFTWARE
COMPRESSION DICTIONARY SOFTWARE
102
SERVER
124
CLIENT
106
105
124
124
102
SERVER
NETWORK
122
124
124
CLIENT
105
106
101
101
124
160
145
FIREWALL
LAN, WAN, OR OTHER NETWORK
CLIENT
155
105
152
DICTIONARY
150
SERVER
105
CLIENT
155
105
152
SERVER

FIG. 1

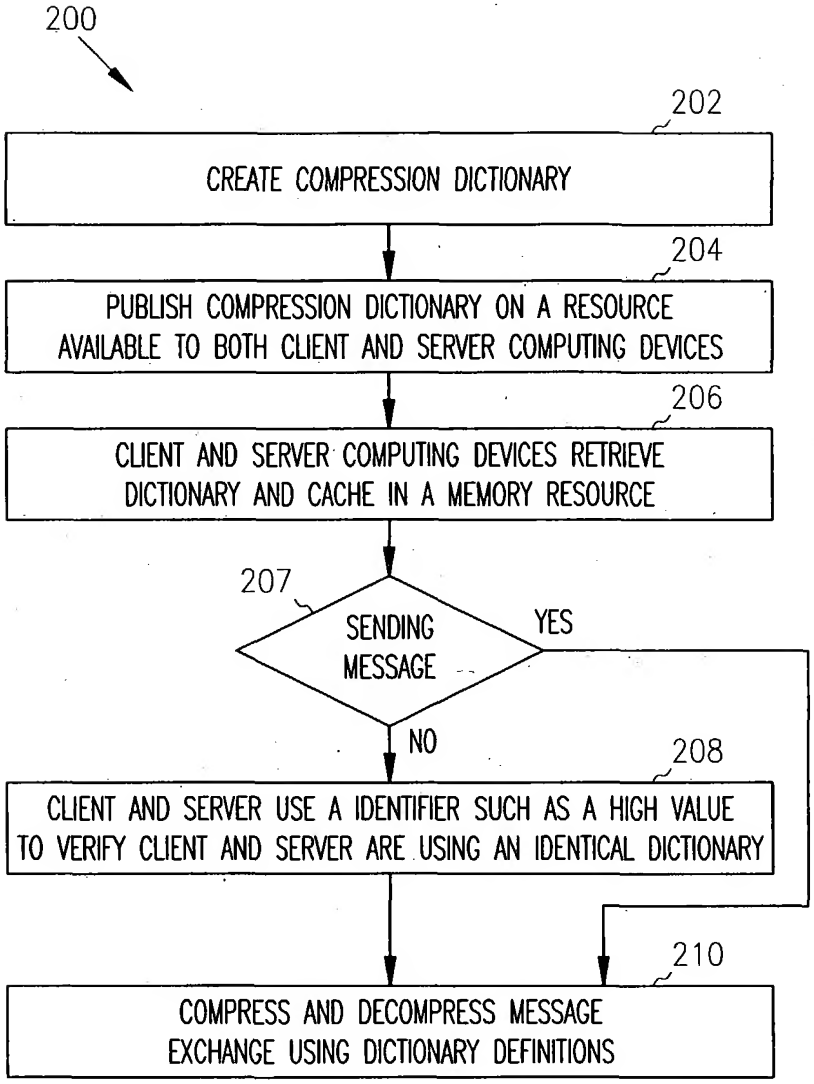
200
202
CREATE COMPRESSION DICTIONARY
204
PUBLISH COMPRESSION DICTIONARY ON A RESOURCE AVAILABLE TO BOTH CLIENT AND SERVER COMPUTING DEVICES
206
CLIENT AND SERVER COMPUTING DEVICES RETRIEVE DICTIONARY AND CACHE IN A MEMORY RESOURCE
207
SENDING MESSAGE
YES
NO
208
CLIENT AND SERVER USE A IDENTIFIER SUCH AS A HIGH VALUE TO VERIFY CLIENT AND SERVER ARE USING AN IDENTICAL DICTIONARY
210
COMPRESS AND DECOMPRESS MESSAGE EXCHANGE USING DICTIONARY DEFINITIONS

FIG. 2

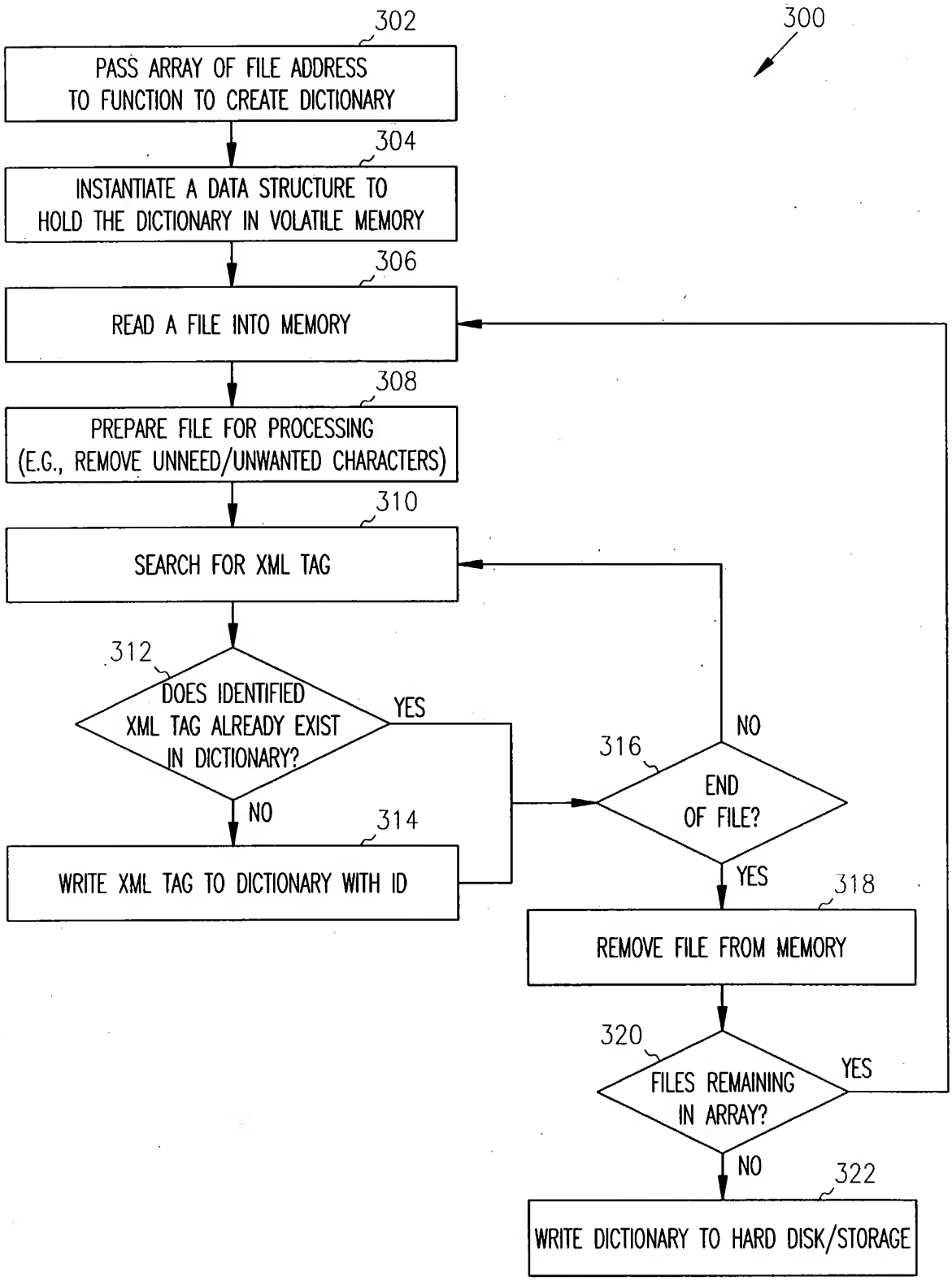
300
302
PASS ARRAY OF FILE ADDRESS TO FUNCTION TO CREATE DICTIONARY
304
INSTANTIATE A DATA STRUCTURE TO HOLD THE DICTIONARY IN VOLATILE MEMORY
306
READ A FILE INTO MEMORY
308
PREPARE FILE FOR PROCESSING (E.G., REMOVE UNNEED/UNWANTED CHARACTERS)
310
SEARCH FOR XML TAG
312
DOES IDENTIFIED XML TAG ALREADY EXIST IN DICTIONARY?
YES
NO
314
WRITE XML TAG TO DICTIONARY WITH ID
316
END OF FILE?
NO
YES
318
REMOVE FILE FROM MEMORY
320
FILES REMAINING IN ARRAY?
YES
NO
322
WRITE DICTIONARY TO HARD DISK/STORAGE

FIG. 3

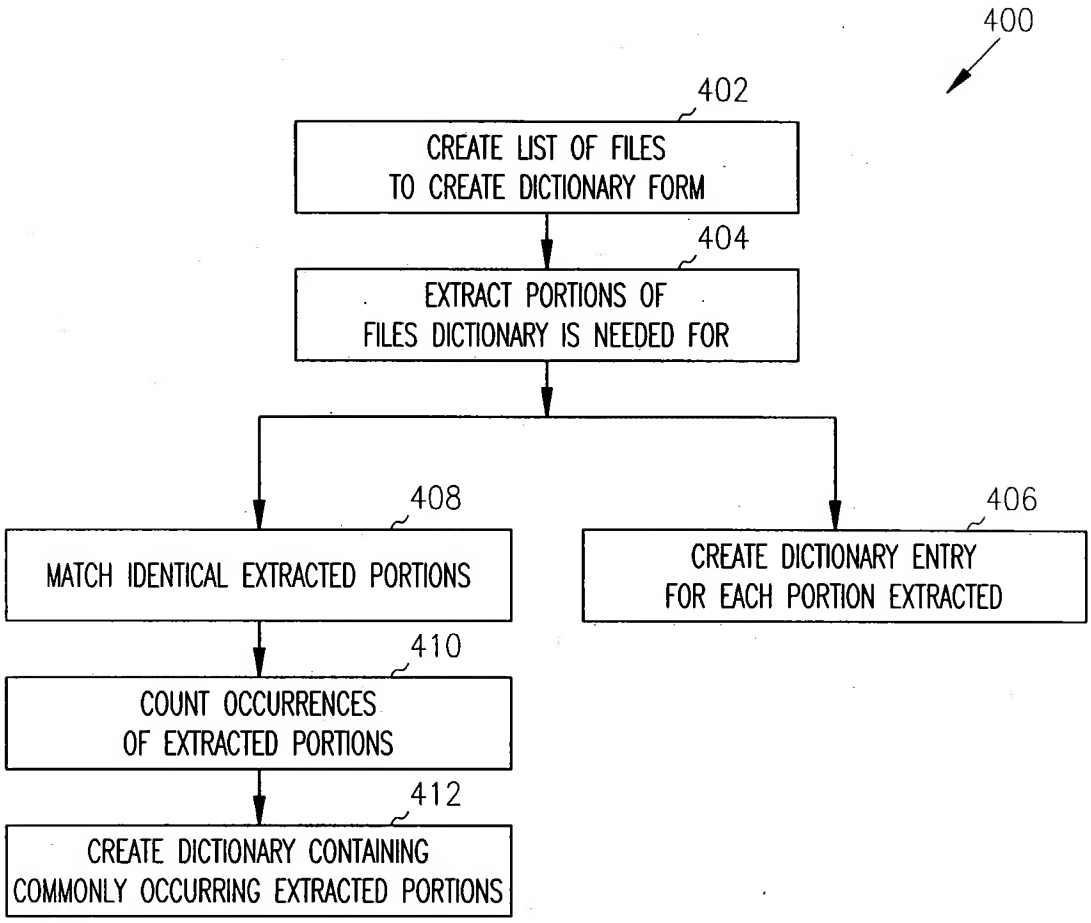
400
402
CREATE LIST OF FILES TO CREATE DICTIONARY FORM
404
EXTRACT PORTIONS OF FILES DICTIONARY IS NEEDED FOR
408
MATCH IDENTICAL EXTRACTED PORTIONS
406
CREATE DICTIONARY ENTRY FOR EACH PORTION EXTRACTED
410
COUNT OCCURRENCES OF EXTRACTED PORTIONS
412
CREATE DICTIONARY CONTAINING COMMONLY OCCURRING EXTRACTED PORTIONS

FIG. 4

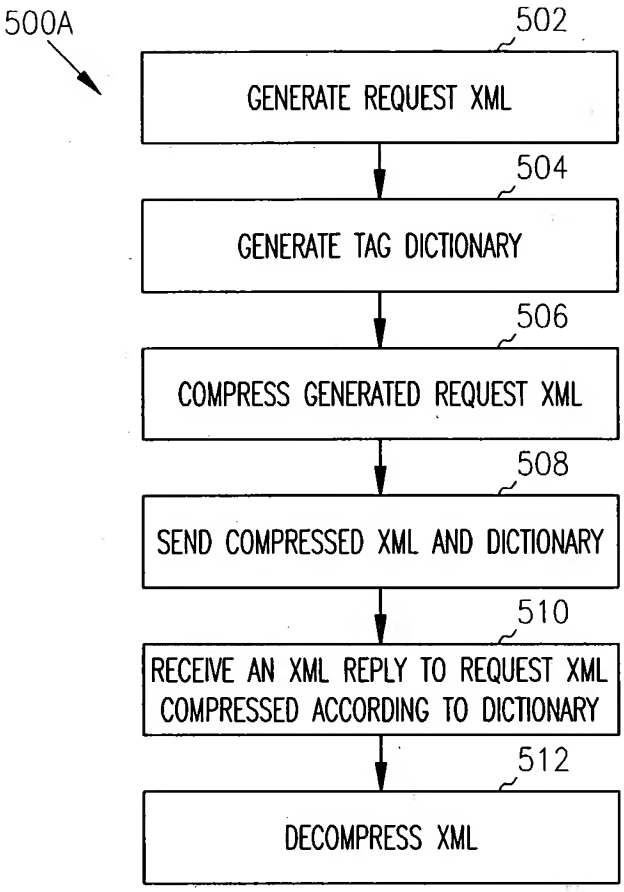
500A
502
GENERATE REQUEST XML
504
GENERATE TAG DICTIONARY
506
COMPRESS GENERATED REQUEST XML
508
SEND COMPRESSED XML AND DICTIONARY
510
RECEIVE AN XML REPLY TO REQUEST XML COMPRESSED ACCORDING TO DICTIONARY
512
DECOMPRESS XML

FIG. 5A

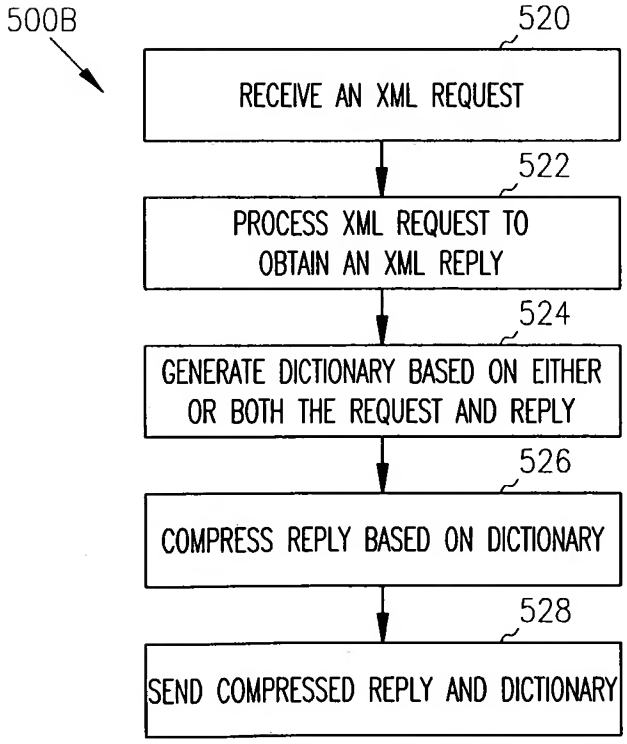
500B
520
RECEIVE AN XML REQUEST
522
PROCESS XML REQUEST TO OBTAIN AN XML REPLY
524
GENERATE DICTIONARY BASED ON EITHER OR BOTH THE REQUEST AND REPLY
526
COMPRESS REPLY BASED ON DICTIONARY
528
SEND COMPRESSED REPLY AND DICTIONARY

FIG. 5B

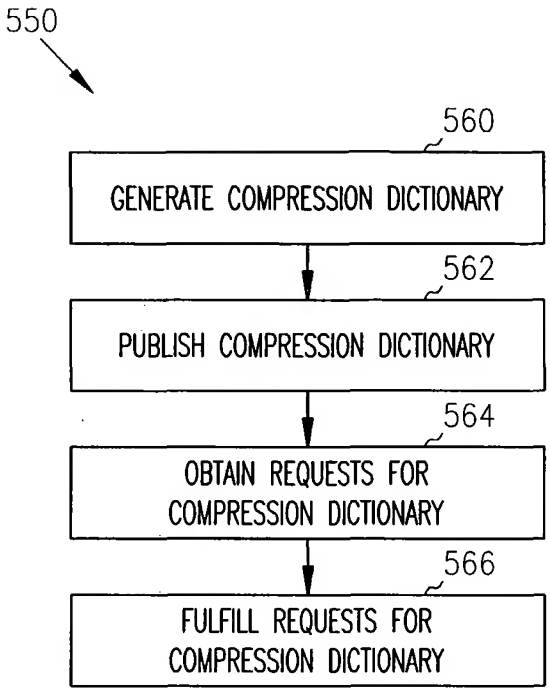
550
560
GENERATE COMPRESSION DICTIONARY
562
PUBLISH COMPRESSION DICTIONARY
564
OBTAIN REQUESTS FOR COMPRESSION DICTIONARY
566
FULFILL REQUESTS FOR COMPRESSION DICTIONARY

FIG. 5C

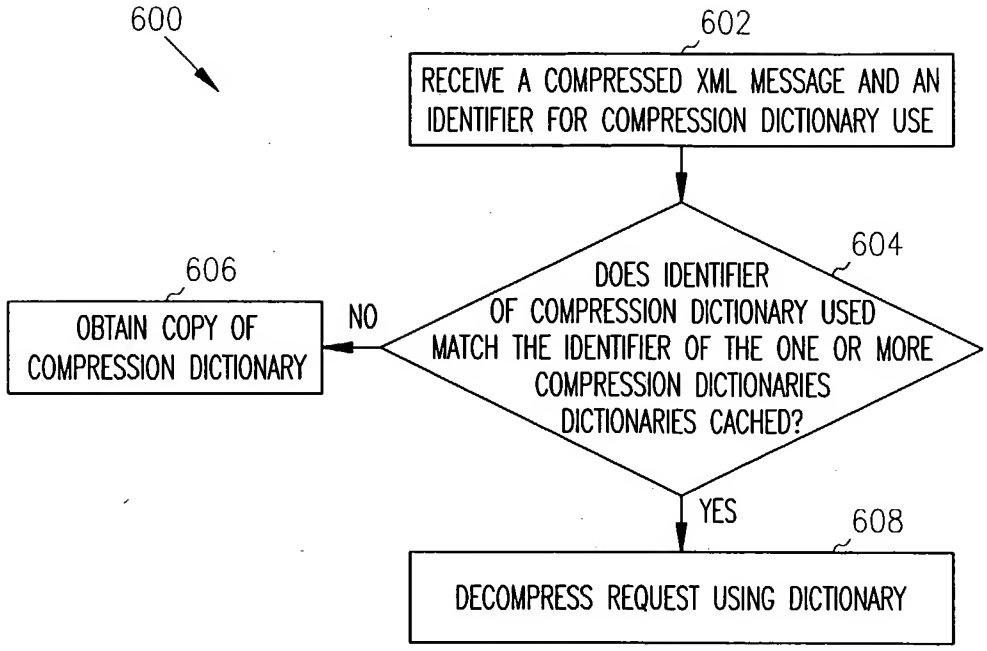
600
602
RECEIVE A COMPRESSED XML MESSAGE AND AN IDENTIFIER FOR COMPRESSION DICTIONARY USE
604
DOES IDENTIFIER OF COMPRESSION DICTIONARY USED MATCH THE IDENTIFIER OF THE ONE OR MORE COMPRESSION DICTIONARIES DICTIONARIES CACHED?
606
OBTAIN COPY OF COMPRESSION DICTIONARY
NO
YES
608
DECOMPRESS REQUEST USING DICTIONARY

FIG. 6

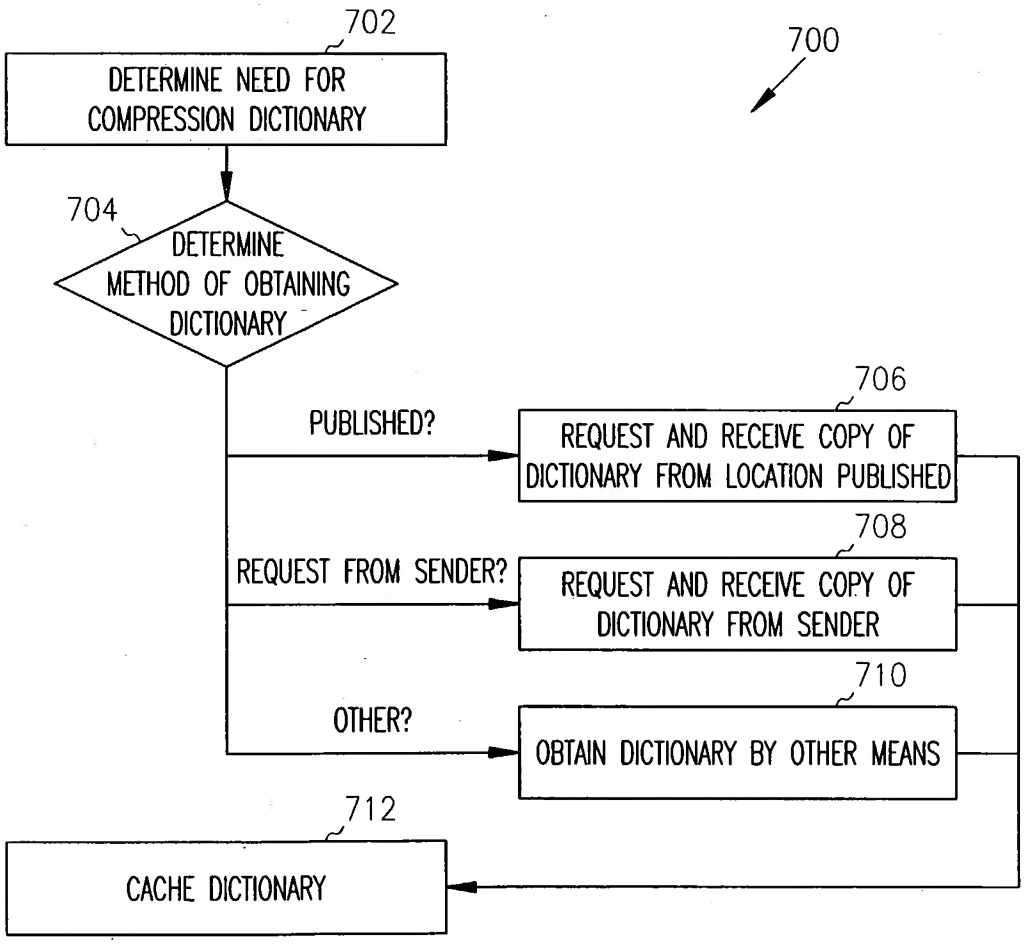
700
702
DETERMINE NEED FOR COMPRESSION DICTIONARY
704
DETERMINE METHOD OF OBTAINING DICTIONARY
PUBLISHED?
706
REQUEST AND RECEIVE COPY OF DICTIONARY FROM LOCATION PUBLISHED
REQUEST FROM SENDER?
708
REQUEST AND RECEIVE COPY OF DICTIONARY FROM SENDER
OTHER?
710
OBTAIN DICTIONARY BY OTHER MEANS
712
CACHE DICTIONARY

FIG. 7

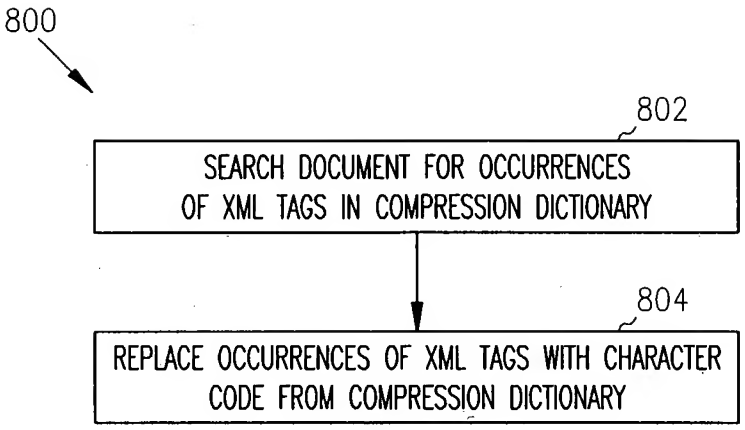
800
802
SEARCH DOCUMENT FOR OCCURRENCES OF XML TAGS IN COMPRESSION DICTIONARY
804
REPLACE OCCURRENCES OF XML TAGS WITH CHARACTER CODE FROM COMPRESSION DICTIONARY

FIG. 8

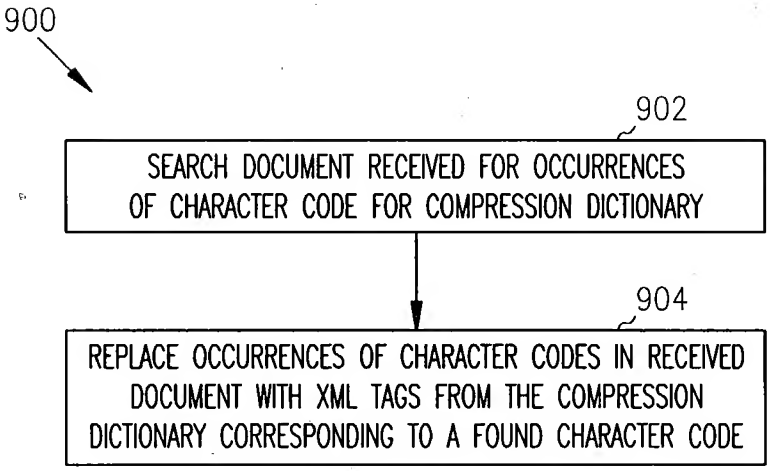
900
902
SEARCH DOCUMENT RECEIVED FOR OCCURRENCES OF CHARACTER CODE FOR COMPRESSION DICTIONARY
904
REPLACE OCCURRENCES OF CHARACTER CODES IN RECEIVED DOCUMENT WITH XML TAGS FROM THE COMPRESSION DICTIONARY CORRESPONDING TO A FOUND CHARACTER CODE

FIG. 9

1002

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope
  xmlns:soapenv=http://schemas.xmlsoap.org/soap/envelope/
  xmlns:xsd=http://wwww3.org/2001/XMLSchema
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
 <soapenv:Body>
  <AddDocumentByReference xmlns="http://www.pwg.org/ps/20030321/">
   <jobURI>urn:uuid:a2b21e20aba5-4bae-8129-0f8cd3c89a45</jobURI>
   <reference>http://www.pwg.org/ps</reference>
   <documentDescription xsi:nil="true"/>
   <documentProcessing xsi:nil="true"/>
  </AddDocumentByReference>
 </soapenv:Body>
</soapenv:Envelope>
```

FIG. 10A

1004

```
0 = <?xml version="1.0" encoding="UTF-8"?>
1 = <soapenv:Envelope
    xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
    xmlns:xsd="http://www.w3.org/2001/XMLSchema"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
2 = <soapenv:Body>
3 = <AddDocumentByReference xmlns="http://www.pwg.org/ps/20030321/">
4 = <jobURI>
5 = </jobURI>
6 = <reference>
7 = </reference>
8 = <documentDescription xsi:nil="true"/>
9 = <documentProcessing xsi:nil="true"/>
A = </AddDocumentByReference>
B = </soapenv:Body>
C = </soapenv:Envelope>
```

FIG. 10B

1006

01234{urn:uuid:a2b21e20-aba5-4bae-8129-0f8cdc89a45}56{http://www.pwg.org/ps}789ABC

FIG. 10C

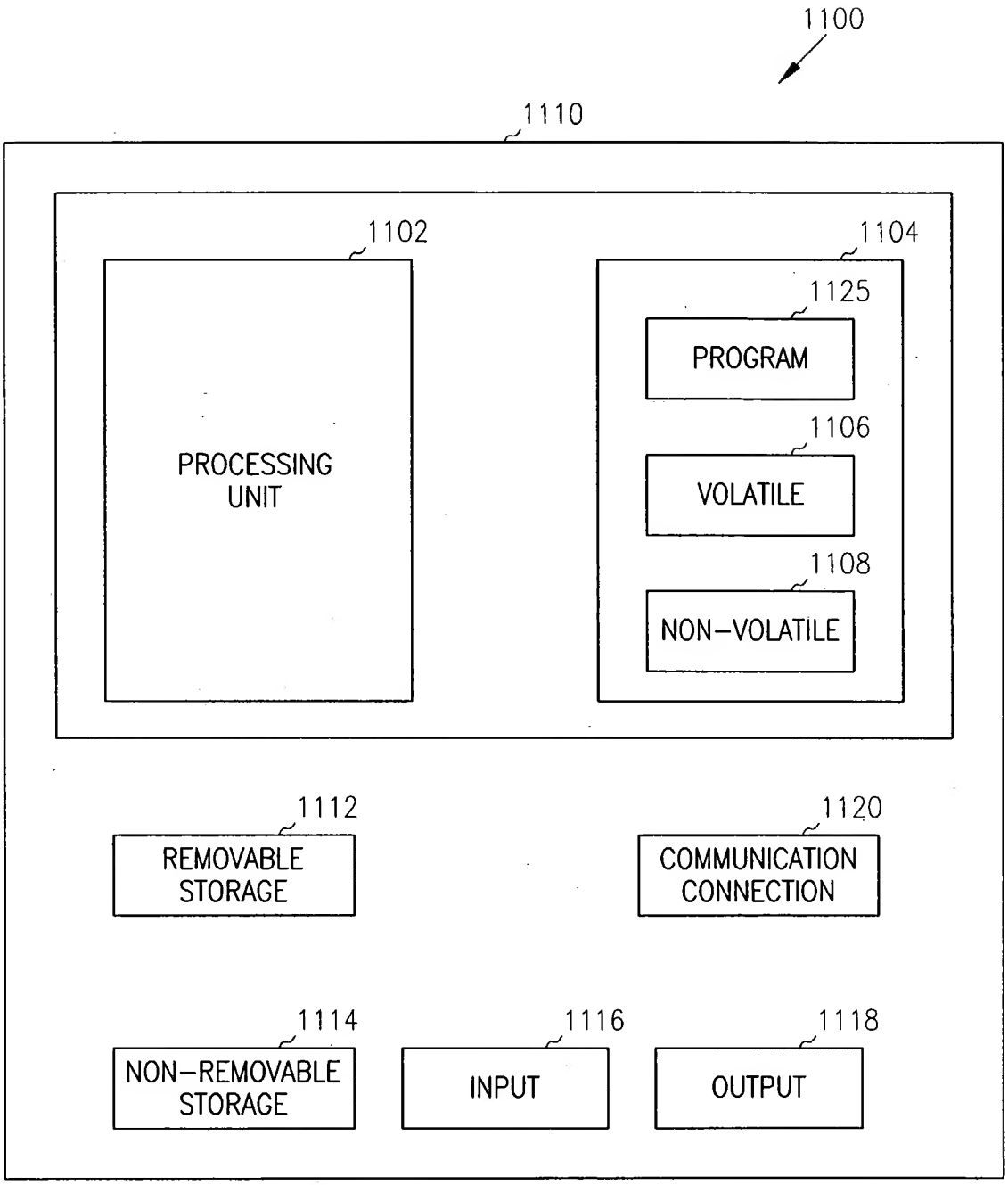
1100
1110
1102
PROCESSING UNIT
1104
1125
PROGRAM
1106
VOLATILE
1108
NON-VOLATILE
1112
REMOVABLE STORAGE
1120
COMMUNICATION CONNECTION
1114
NON-REMOVABLE STORAGE
1116
INPUT
1118
OUTPUT

FIG. 11